RIDGE

BUILDING SURVEY REPORT
DEPOT HOUSE, SOUTH ST,
OWSTON FERRY, DONCASTER
DN9 1RP
27 July 2023

BUILDING SURVEY REPORT

RIDGE

DEPOT HOUSE, SOUTH ST, OWSTON FERRY, DONCASTER DN9 1RP

27th July 2023

Prepared for

Environmental Agency
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Rotherham
S60 1BY
United Kingdom

Prepared by

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1. VIEW OF FRONT ELEVATION

2. INTRODUCTION

2.1. Client's Name and Address

Environment Agency
Aqua House
20 Lionel Street
Birmingham
B3 1AQ

2.2. Property Address

Depot House
South St
Owston Ferry
Doncaster
DN9 1RP

2.3. Brief and Scope of Survey / Instruction

We are instructed by the Environmental Agency to review existing information for the property by way of a desktop review, and to inspect and undertake appropriate detailed investigations to record the condition and identify any required remedial works.

Our report is prepared in accordance with the client's Letter of Instruction, in which we are required to concentrate upon major defects and building problems where they exist rather than minor items of defect or disrepair.

A schedule of works with budget costs have been provided for works specified by the client.

2.4. Brief Description of Building Surveyed

The building is a two-storey detached residential building consisting of three bedrooms with a hipped roof construction with traditional clay pantile covering. The walls are constructed with cavity wall construction with a 50mm cavity. The building also comprises of a single storey extension to the northern elevation, which houses a pantry room, utility room and the main rear lobby which is accessed via the eastern elevation.

The property is heated via a central heating system with radiators, which are powered by a relatively new LPG boiler located in the pantry located in the rear porch. Although the boiler is relatively new, the radiators are circa 20 years, which can negatively affects its thermal efficiency.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1. Executive Summary

The building is currently occupied and consequently most of the existing structure is concealed behind internal finishes. Intrusive investigation works are recommended to better understand the structure and provide necessary information required for any potential alterations or remedial works.

Externally, it is generally in a reasonable state of repair, with serviceable pitched roof coverings albeit of some considerable age. The main roof gutters are also in reasonable condition.

The pointing to the external elevations was generally in reasonable condition when considering the age of the property, however, we did never several sections of pointing required at low level on all elevations.
During the inspection, a large horizontal cracking was noted at high level to the Southern elevation. Further intrusive investigations were carried out and we noted several wall ties have been affected by corrosion. Additionally, we found there to be an insufficient number of wall ties present. Remedial works are required to ensure structural integrity of the wall construction.

Windows were found to be in reasonable condition, as they are modern uPVC units, however there were three glazing panels that were blown in the bathroom, and two of the bedrooms which require immediate replacement, as the airtightness has been compromised.
We also noted a lack of trickle vents installed to the windows, apart from the kitchen, and would recommend retrofitting these, as there are several condensation related issues such as black mould affecting the property. This is due to inadequate levels of ventilation.

The external doors were found to be in reasonable condition, although we did note some mastic on the external side of the frame that requires renewal as it has come away and potentially allowing moisture to ingress.

3.2. Schedule of Items of Note

Throughout the report, we have made recommendations in Bold Italics.

3.2.1. Major Structural Defects

Horizontal cracking was noted on the southern elevation above the concrete canopy and below the windowsill, with a slight bulge/bowing of the external leaf visible. This would usually suggest some form of potential wall tie failure.

Therefore, Ridge undertook a cavity wall survey alongside an appointed contractor, which involved drilling into the wall construction and utilising a borescope. The findings showed evidence of disruption due to wall tie corrosion of the galvanised mild steel wire type ties and fish tail type tails. The investigation also identified a lack of existing wall ties that are required to comply with Building Regulations. Further information is provided within the cavity wall report contained in Appendix A.

3.2.2. Immediate Repairs

The property requires various repairs which are set out below.

- Clear the guttering and the drainage gullies to ensure rainwater is suitable discharged.
- Replace the fascia and soffit around the full perimeter of the building.
- Patch repointing of approximately 40m² is undertaken to repair any damaged, missing, or deteriorated pointing.
- Retrofit all uPVC window units to promote more natural ventilation.
- Remove existing door to kitchen pantry and replace with a lourved alternative interior door to promote more natural ventilation.
- Replace blown glazing panels to the windows located in the bathroom and bedrooms to improve thermal efficiency and mitigate heat loss.
- Renew mastic/sealant around the front external door frame.
- Remove panels blocking the air bricks to prevent possible timber decay.
- Carry out remedial works to the corroded and lack of existing wall ties. As detailed within the Structural recommendations and the report contained in Appendix A.

3.2.3. Long Term Consideration

The property requires major refurbishment works to bring it standard in line with Part L of Building Regulations.

3.2.4. Other Items of Comment

None.

4. GENERAL INFORMATION

4.1. Date of Instruction, Inspection Date, Weather Conditions

Ridge and Partners LLP were instructed by the Environmental Agency to undertake a visual inspection of the building to review the existing condition and comment on any identified issues and providing a detailed schedule of works. The survey of the property was carried out on two separate occasions. An initial investigation was carried out on the 13th of July 2023 and the weather at the time of the inspection was clear, sunny with some light rain. The next inspection was a structural investigation to determine the condition of wall ties and was carried out on the 20th of July. The weather at the time of the inspection was clear and cloudy.

4.2. Personnel Involved in Inspection

Surveyor - Ridge & Partners LLP – Nazmul Hussain, BSc (Hons)
Structural Engineer – George Lovett, MEng (Hons)

4.3. Occupiers and Use of Building

Two adult tenants currently occupy the building.

4.4. Limitations

We have not carried out any thermal assessment or analysis of the property as part of the scope of this instruction.

If our inspection identifies any matters that we consider require further investigations, they are highlighted in the report. No inspection or testing of water services or foul drainage has been undertaken as part of our survey.

5. GENERAL DETAILS

5.1. Site

The property is positioned within Owston Ferry and is accessed directly with from South Street within a quiet residential area. It is located on a corner site and is bounded by steel palisade fencing.

Site Plan

5.2. External Grounds

Externally, the curtilage of the property is clearly defined by steel palisade fencing. Access is gained through a steel double leaf palisade security gate. Upon inspection, the gate and fencing looked to be in fair condition, as it functions with minimal issues. The landscaping comprises of a mixture of mowed lawn, several mature trees and concrete paving forming a pathway around the perimeter of the property. The concrete hard standing/paving is in reasonable condition although some areas are soiled and begrimed. The paving appears to be adequately drained with no evidence of pooling of rainwater near the site.

5.3. Garage

A garage is located on the east side of the main property. The wall is constructed with double leaf stretcher bond wall at 215mm thickness. The roof is a traditional hip roof construction and is finished with clay pantile tiles. Due to the vast amount of moss and lichen build up, which is likely caused by the proximity of several mature trees, the visual inspection was obscured comprising the inspection. The Moss and lichen can be detrimental as they provide passage for moisture ingress, which left untreated, can lead to significant damp damage to the roof truss and rafters. We would recommend carrying out a professional clean to clear the drainage channels and remove the presence of moss and lichen.

We noted a timber framed single glazed window, which appeared to be in reasonable condition, but potentially reaching its serviceable end. However, it is located within an uninhabited space and currently only being used as a storage space by the tenants, therefore it may not be crucial to have this replaced and upgraded to a modern uPVC framed double glazed window.

5.4. Historic Information/Development Team and Details

The property does not appear on a register of listed buildings. We also could not find any evidence that the property was registered as Buildings of Local Interest and the property is not located within a Conservation Area.

6. FOUNDATIONS

6.1. Foundations

It was not practical to open the foundations for inspection. Consequently, comments in this regard are limited to our observation during the visual inspection. No signs of significant cracking, deflection or other distress to the structure that would indicate failure of the foundations were observed to the building and on this basis no further investigations are required.

7. EXTERIOR OF BUILDING

7.1. Roof, Chimneys, Gutters, and Parapets

Pitched Roofs - Covering

The main roof to the building comprises a hipped roof structure with timber rafters and purlins. The roof is finished with bituminous felt and clay pantiles. The roof covering has some lichen / moss growth to certain slopes, which indicates that the covering is of some age, we suggest circa 10 – 15 years old. The coverings are in reasonable condition, as we did note any slipped, cracked, or missing tiles, which would pose a concern. We also noted the felt was in poor condition as it has decayed significantly at the eaves, which we assume is caused by over exposure to UV radiation.

In general, the roof covering appeared to be in fair condition no evidence of ingress internally. A clay pantile roof covering to a pitched roof generally has an estimated life expectancy of 50 - 70 years, if well maintained and in good condition. The roof still has over 40 - 50 years life expectancy.

Pitched Roofs - Structure

The roof structure was only viewed internally by accessing the loft hatch located in the 1st floor landing area. We immediately noticed a lack of adequate ventilation within the loft, which can and has caused condensation to build up, which has affected the felt. We also noted insulation has been laid out to a satisfactory amount to provide efficiency thermal performance. However, due to the lack of ventilation options in the roof void, there is a high possibility the insulation can become saturated, therefore losing its thermal performance properties, and leading to further condensation related issues such as black mould.

We did not notice any evidence of dry rot, however, as there is currently insufficient ventilation within the roof void, this can lead to moisture build / condensation, which could provide potential future issues. The trapped moisture provides an ideal environment for the growth and spread of dry rot fungi, which can rapidly grow and target the purlins and rafters, causing it to decay and weaken. If left untreated, it can spread rapidly and affect other components of a roof and even the building structure.

No deflection was visible externally and so there does not appear to be any structural defects.

The joinery at the eaves is in poor condition, as sections have decayed due to lack of regular maintenance and decorations. Due to age and condition, we would recommend replacing with a uPVC equivalent. ***Should any alterations be proposed to the roof structure, we recommend that a structural engineer confirms that they are satisfied with the structural ability of the roof structure to carry the loads imposed upon them.***

Gutters and Rainwater Pipes (Rainwater Goods)

The rainwater goods are comprised of lead lined valley gutters and modern uPVC gutters and downpipes, which are in reasonable condition. It is likely these were installed during the roofing works; therefore, we assume these units to be circa 10 – 15 years old. We do not expect these will require replacement in the immediate term as the rainwater goods are still in serviceable condition.
However, we expect during the replacement of the fascia boards, the polypropylene seals which hold the uPVC gutters together may get damaged, therefore it is ideal to allow a provisional sum for any repairs/replacement required.

We noted vegetation causing blockages to localised areas of the lead lined valley gutters and uPVC guttering. We also noted a gulley on the south elevation blocked by debris. Remedial/clearing works are required to ensure rainwater is suitably discharged into the drainage system. ***We would recommend that you take the opportunity to clear the guttering and the drainage gullies to ensure rainwater is suitable discharged.***

It was noted that the paint finish to the timber soffit and fascia has deteriorated, with some sections are rotten due to decay. ***We would recommend that you take the opportunity to replace the fascia and soffit around the full perimeter of the building.***

7.2. Walls

The external walls are in fair general condition although some repointing works are required at low-level throughout all elevations where this has deteriorated above the block paving. ***We would recommend that patch repointing of approximately 40m² is undertaken to repair any damaged, missing, or deteriorated pointing.***

On the Southern elevation, we noted the horizontal crack and a slight bulging/bowing of the wall, which led to the introduction of the cavity wall survey. The findings of the investigations showed there is evidence of disruption due to wall tie corrosion of the galvanised mild steel wire type ties and fish tail type tails. This can result in the expansion of the metal embedded in the outer leaf, which can sometimes split the bed joints and causing the bowing movement that is apparent with this building. It can also reduce the strength and stability of the wall, and so remedial works are required immediately. Further information can be referred to the cavity wall report in Appendix A. The cracking can be repointed once remedial works have been completed. ***We would recommend carrying remedial works which would entail the locating and isolating of all existing mild steel fish tail type ties to the front, rear and both gable elevations. Drill for and insert new stainless-steel remedial ties in accordance with current codes of practice, remote from and forming an alternate grid pattern to the original.***

From our intrusive investigations of the cavity wall, no insulation was found to be present, and the cavity is approximately 50mm wide.

Cavity wall insulation is generally suitable for cavities of 50mm or greater, However, given the size of this cavity the options are somewhat limited. Insulating a cavity of only 50mm can potentially lead to problems such as inadequate insulation coverage, reduced thermal performance (if saturated) and an increased risk of moisture build up / ingress.

Partial fill insulation needs to allow for a suitable air gap between the outer leaf and insulation. This is to reduce the risk of moisture bridging through to the internal structure.

Given the narrow width of the existing cavity it is recommended to full fill the cavity, and there are a range of products available to ensure improved thermal performance whilst also mitigating the risk of thermal bridging and moisture ingress. Cavity batts can be used which include water repellent additives and non-combustible material to prevent moisture transmission between the inner and outer leaf.

It is not known what improvement this will achieve as we have not been requested to undertake a thermal assessment as part of this report, only to comment on the suitability.

In conjunction with the insulation, consideration should be given to the wall ties to ensure these are positioned correctly to discharge any moisture towards the external leaf. Therefore, insulation works could be carried out

alongside the wall tie replacement / remedial measures recommended. ***We would recommend assessing the potential thermal improvement before proceeding with installation of any insulation, so that cost considerations can be made, and the effectiveness can be evaluated accordingly.***

7.3. Windows

Windows to the property (excluding garage) are modern uPVC double glazed units and were found to be in fair visible condition. However, we noted a lack of air vents present, which is a likely contributing factor to the condensation related issues identified within the building.

We also noted several glazing panes that had blown meaning that they will require immediate remedial works. The affected windows were in the Master Bedroom and the Front Bedroom where one glazing panel was blown. This requires immediate attention, as the thermal efficiency of the windows have been compromised allowing heat to escape. ***We would recommend retrofitting all uPVC units to promote more natural ventilation in the property and carry out remedial works to the blown glazing to improve the thermal efficiency.***

7.4. External Doors

The main entrance door located on the south elevation is a composite uPVC door and the side/rear external door constructed with an insulated panel. Both external doors are in reasonable condition and do not require any immediate works apart from the front external door, which requires a new layer of mastic/sealant on the low level of frame. This is because, we suspect moisture ingress penetrating through small gap as the door reveal on the internal side has sections of blistering paint at low level. ***We would recommend renewing the sealant and mastic around the front external door frame.***

8. INTERIOR OF BUILDING

8.1. General

To adequately inspect the property and its defects, we utilised different equipment to take readings. One being a Tramex moisture meter, which is a non-invasive tool, which provides accurate readings to detect moisture up to 30mm into the surface with different settings for different surfaces for more accurate readings. Another tool used, was the Hydrometer, which was used to calculate Relative Humidity ratings.

8.2. Ceilings

Ceilings are relatively modern and comprised of plasterboard with plaster skim finish and decorations, incorporating traditional lighting, commonly found in this type of construction. The ceilings are in fair condition with exception to the presence of black mould noted throughout the property. The more prominent areas affected with black mould are situated to the ground floor pantry room, where the door is not vented and is often closed with no ventilation. The window was also found to be closed, with no trickle vents meaning there is insufficient ventilation to this space.

We also noted presence of black mould to all the bedrooms in various different locations. Upon inspection, we noted the doors and windows were kept closed, preventing further natural ventilation. As mentioned previously, there are lack of trickle vents to all bedroom windows, which is another mitigating factor. Recommendations have been noted under section 8.9 ventilation.

8.3. Walls

Internal finishes of the perimeter walls comprise of decorated plaster, and these were found to be in fair general condition, with internal areas formed in a combination of both plastered masonry and partition walls. Within both the kitchen and toilet areas, tiled finishes are present to the walls.

Generally, the walls are in fair condition with no visible defects although, we noted some paint blistering on the internal wall where the staircase is located at low level. We assume this is likely due to condensation build up. In the kitchen, combined with a lack of mechanical ventilation present, which can exacerbate the condensation build up. Additionally, a pantry is located on that side, which is unheated, therefore would generally be considered a cold space, in turn, making the internal wall cold as well.

We also noted condensation related issues such as black mould as stated in the previous subheading under ceilings. The tiled finishes to the kitchen and bathroom were noted to be soiled and dated.

8.4. Floors

The ground floors, for the most part appear to be solid ground bearing concrete floors overlaid with a cement screed and finished with a mixture of tiled floor coverings in the kitchen/bathroom/hallway and carpet finishes to the rest of the areas. The floors are in reasonable condition with some soiling noted in line with the building use.

We were not able to view/inspect the underside of the floor. however, we believe the flooring to where the lounge is located is a suspended timber floor, which has been finished with ceramic tiles. We also noted several airbricks have been blocked, therefore preventing cross ventilation / airflow to the underside of the timber floor. This will in turn contribute to an increase in the existing moisture content, which, in turn, can lead to decay. We also noted two air bricks partially blocked by the paved concrete on the western elevation.

This is likely due to the paved concrete flooring, which was laid above the ground around the perimeter of the building.
Although we did not note any visible defects to the flooring at time of inspection. ***We would recommend carrying out remedial works to prevent possible decay. This will involve removing the covers from the airbricks, ensure the airbricks are clear of obstructing.***

The intermediate upper floors are suspended timber floors with a carpet finish, and we did not observe any defects.

8.5. Doors

Internal doors comprise of painted panelled timber doors. Vision panels are present to internal lobby doors, fitted with Georgian wired glass. Doors are in fair condition with some minor deterioration of the paint finish noted to both the door and surrounding frame. It was noted that some doors are labelled as fire doors, however no assessment of fire doors or compartmentation was undertaken in production of this survey report.

8.6. Joinery

Timber architraves and skirting boards are present around the perimeter of all the rooms. We noted sections of skirting boards, damaged due to moisture ingress through bridging of the walls at low level. The more prominent areas the to the door reveal of the front entrance on the southern elevation. As mentioned, these are only in localised sections, generally, they are in fair condition.

As per client instructions, the existing kitchen is to be stripped out and replaced with a new like for like kitchen, as it has been deemed to be a 'dated' kitchen, that requires full renewal. The kitchen consists of MDF cupboards and a laminated worktop.

We noted some paint blistering on the internal wall where the staircase is located at low level. We assume this is likely due to condensation build up. In the kitchen, there is a lack of mechanical ventilation present, which is exacerbating the condensation build up. Additionally, a pantry is located on that side, which is unheated, therefore would generally be considered a cold space, in turn, making the internal wall cold as well. Colder surfaces provide a better environment for condensation to build up and cause damage. ***During renovations, we recommend removing the existing radiator to allow the strip out of the existing plaster and renewing it up to 1m high.***

8.7. Bathroom

The bathroom is located on the ground and is fitted with a basic WC, pedestal wash hand basin and a bath, incorporating an electric shower, all found to be in reasonable condition and not requiring any immediate remedial works.

As mentioned previously, the bathroom lacked a form of mechanical ventilation, which is the main factor to the condensation related issues such as the black mould that developed. This room naturally sees a lot of steam build up due to the running of hot water through the sink and shower. ***Therefore, we would recommend the introduction of a form of mechanical ventilation.***

8.8. Staircases

The property has internal steps to access the upper floors with timber balustrades, balusters, and handrails. The staircase is in fair condition which no significant cause for concerns.

8.9. Ventilation

As mentioned previously, there are several instances of condensation related issues due to the ventilation in the property being poor. One factor is that all but one (kitchen) uPVC windows within the property have been installed with no trickle vents, meaning that currently there is insufficient background ventilation provided. Another factor is the lack of mechanical ventilation present in high usage areas such as the kitchen and bathroom, and the fact that the windows and doors are generally kept closed through the day, which prevents any natural ventilation. ***We would recommend retrofitting the existing uPVC windows with suitable trickle vents to promote more background ventilation and mitigate the condensation related issues.***

The bathroom does not have any form of mechanical ventilation either and therefore currently rely upon manually opening of the window. The nature of the room uses would generally have highest risk of condensation. Black mould can be detrimental to humans as over exposure can sometimes lead to medical issues such as asthma and other respiratory illness. ***There are several steps that are required to improve the ventilation. It will be important to implement forms of mechanical ventilation by installing an extractor fan in high usage areas such as kitchen and bathroom.***

Items stored closely to external walls and against windows will contribute to condensation issues also prevents natural ventilation and causes moisture to build up to the window reveals and causes the MDF sill boards to become blown in the corners. ***We would also encourage the tenant to do their part and try to improve the natural ventilation in the property by regularly opening doors and windows to air out the building and move furniture away from external walls to allow airflow to the surfaces of the external walls where possible.***

9. SERVICES

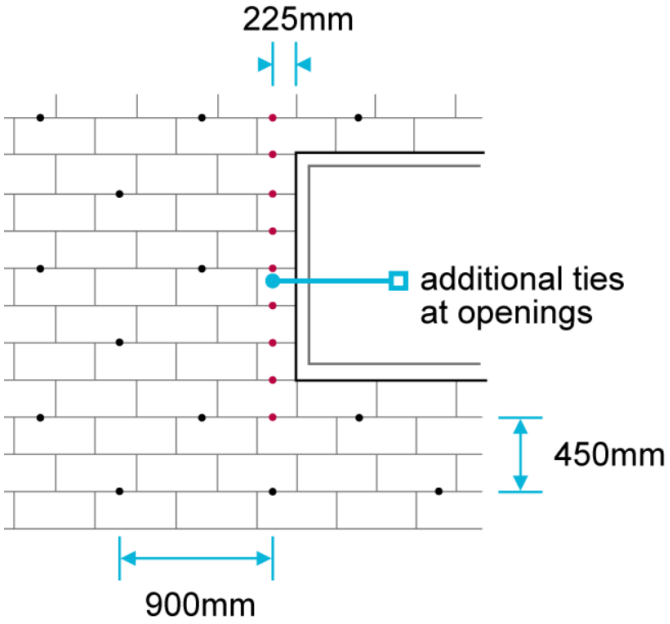
9.1. Mechanical & Electrical Services

Mechanical and Electrical Services are not part of this survey.

10. REMEDIAL WALL TIE DETAILS

In conjunction with the cavity wall report by Clan, Appendix A, see below for our remedial cavity wall recommendations.

- Ancon Staifix R/R, or similar, remedial wall ties are to be installed in line with Ancon's installation guidance, see Appendix B.
- Remedial wall ties to be placed as per the guidance in NHBC section 6.1.18, see Appendix C.
-



11. INACCESSIBLE AREAS

You will appreciate we could not inspect parts of the structure or services that are covered, inaccessible or not exposed. We cannot therefore report that they are free of any defect that may subsequently become apparent. This also applies to all underground or external but concealed service ducts, pipes, cables, etc.

12. THIRD PARTY CLAUSE

In accordance with our standard practice, we must state this report is confidential to the party to whom it is addressed and their professional advisers.

The contents are not to be disclosed to, or made use of, by any third party, without our express written consent. Without such consent we can accept no responsibility to any third party.

Nazmul Hussain BSc (Hons)
Building Surveyor
For Ridge and Partners LLP

APPENDIX A – CAVITY WALL REPORT

Structural specialists since 1982

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24th July 2023

Nazmul Hussain
Building Surveyor
Ridge and Partners LLP

REF: Depot House, South Street, Owston Ferry, Doncaster, DN9 1RP
CAVITY WALL TIE INSPECTION

Further to your instructions we have now undertaken a limited inspection of the above property with regards to the behavior of the cavity wall ties and would report as follows: -

1.0 **Inspection**

1.1 The inspection was confined to determining the behavior of the existing cavity wall ties and did extend from structural engineering report or structural survey. No consideration has been given to services, drainage, fixtures, fittings, roof space, sub-floor voids, foundations, woodwork etc.

1.2 **Form of Construction**

The two-storey detached house is built with traditional cavity walls with a concrete storm shelter above front door entrance and a single storey extension to the rear elevation built in 215mm solid construction with a pitch tiled roof.

2.0 FINDINGS

2.1 External elevations display the following evidence of disruption due to wall tie corrosion: -

Lack of existing wall ties
Horizontal cracking and bulging of the outer leaf brickwork to the upper front and upper rear elevations.

2.3 Wall ties displayed the following features: -

Galvanized mild steel wire type ties and fish tail type tails in a corroded condition.

3.0 DISCUSSION

3.1 In our opinion the symptoms noted above are consistent with advanced corrosion of the cavity wall ties. Structural damage is currently evident due to the existing level of wall tie corrosion and there is therefore a need to carry out replacement of the ties.

3.2 Corrosion of wire/butterfly type ties results in eventual severing and failure within the cavity, without necessarily displaying tell-tale signs externally and from a visual inspection. However, due to the small amount of parent metal within the mortar bed, we are of the opinion that severe distortion or cracking to the outer leaf of masonry will not occur and therefore, this particular type of tie may safely be left in place and allowed to corrode away without the need for removal or isolation.

3.3 A lack of ties in a cavity wall considerably reduces the strength and stability of the wall, in particular resistance to wind loads is impaired and failure from this cause is possible. While sudden failure is unlikely to occur, it would be prudent to rectify the matter once noted as the defect is liable to affect the value and resale prospects of the house.

3.4 Corrosion of the fish tail type wall ties results in expansion of the metal embedded in the outer leaf, eventually to a size several times its original thickness, sometimes splitting the bed joints and causing either lifting and/or bowing of the walls and damage to internal finishes. Instability of the wall can result if the ties waste away and break completely, resulting in a need to rebuild the wall.

3.5 If symptoms are recognized before damage has progressed too far the walls may be treated rather than rebuilt. This consists of the location of the old ties by an electronic detector, replacement in a suitable corrosion resistant remedial fixing and finally isolation of the original ties to prevent further damage to the outer leaf. Corrosion of the tie within the inner leaf is unlikely to become significant.

4.0 RECOMMENDATIONS

4.1 Locate and isolate all existing mild steel fish tail type ties to the front, rear and both gable elevations. Drill for and insert new stainless-steel remedial ties in accordance with current codes of practice, remote from and forming an alternate grid pattern to the original.

4.2 The replacement of corroded wall ties should not be carried out by unqualified persons.

We trust the above comments are helpful, but should you have
If you have any queries, please do not hesitate to contact us.

Yours faithfully
CONTRACTING LIMITED
F Woodward
Technical Manager

APPENDIX B – INSTALLATION GUIDE FOR REMEDIAL WALL TIE

Installation Guide

Ancon Staifix R/R Remedial Wall Tie

1. Using a 10mm masonry drill bit, drill through the external leaf (with drill angled slightly upward) until you reach the cavity void.

2. With the tip of the drill bit touching the inner leaf, set the depth gauge on the drill to 60mm. Drill a hole into the inner leaf to a depth of 60mm (if the inner leaf is blockwork, the hammer action should be turned off).

3. Ensure both holes are free from debris using either brush or blow bulb.

4. Check the cavity width at regular intervals to ensure the correct tie length is used.

5. Fit a FIS VL 410 C resin cartridge into a resin gun and attach an extension nozzle to the standard mixing nozzle supplied. Depress the trigger until the resin passes through the mixing nozzle. Continue until the resin comes out an even grey colour and release the pressure.

6. Insert the extended nozzle to the back of the prepared hole in the inner leaf. Activate the trigger and completely fill the hole in the inner leaf. Release the pressure on the resin gun to avoid wastage.

7. Insert the tie into the resin ensuring it is pushed all the way to the back of the hole.

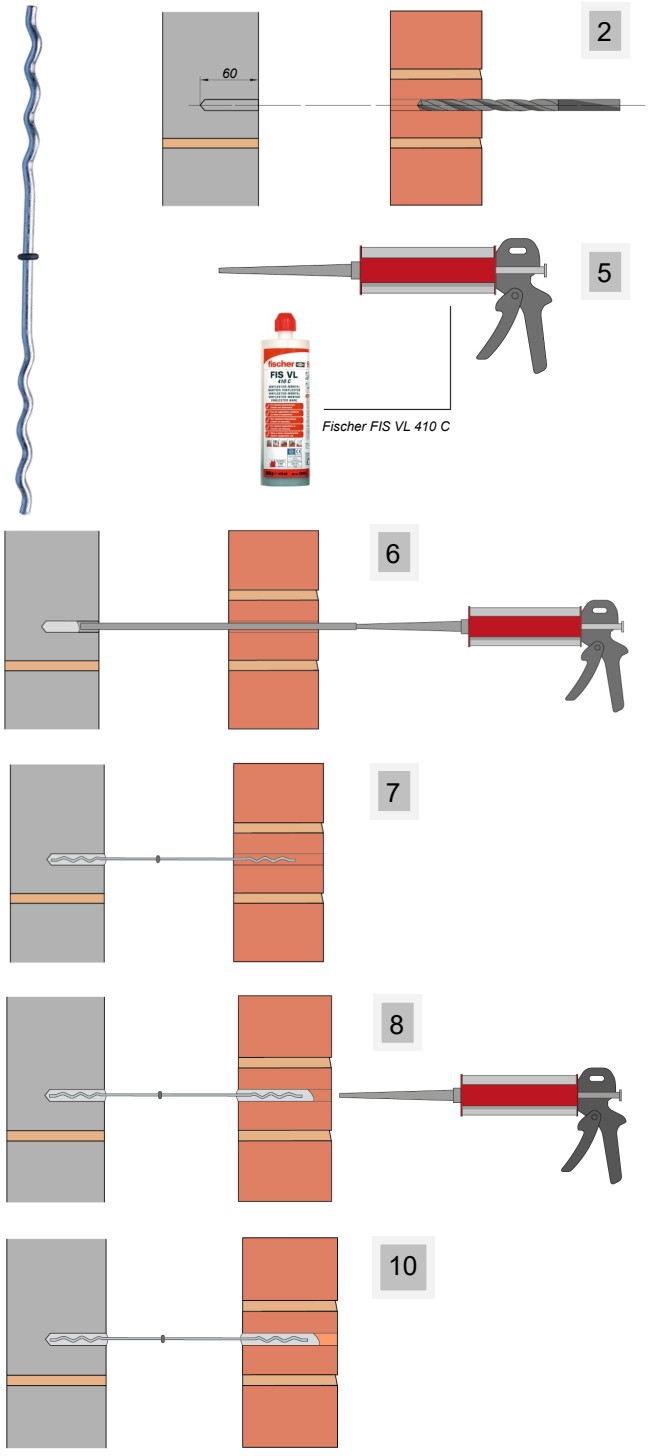
8. Remove the extended nozzle and fill the aperture in the external leaf around the tie using the standard nozzle, ensuring the tie is completely surrounded by resin.

9. Allow the resin to cure.

10. Make good the outer brick using colour matched mortar or mastic (resin manufacturer's technical data should be checked for exact gel time).

NOTE: A plastic sieve may be used to retain resin and is particularly useful in perforated brick or hollow blockwork. A 12mm hole is required to fit the sieve.

Cavity Width (mm)	Tie Length (mm)
40-60	180
61-80	200
81-100	220
101-120	240
121-140	260
141-160	280



APPENDIX C – NHBC EXTRACT ON WALL TIES

6.1.18 Wall ties

Wall ties of the correct type shall be installed where required, and be suitable for their intended use and location. Issues to be taken into account include:

a) position

b) ties for partial fill insulation.

Wall ties should:

- be in accordance with BS EN 845-1 or Technical Requirement R3
- be of the type as specified in the design
- be long enough to be embedded a minimum of 50mm into each leaf
- in England and Wales, be stainless steel or non-ferrous
- in Northern Ireland, be stainless steel or non-ferrous ties used where the cavity is fully filled with insulation and 75mm wide or more; in Scotland, galvanised ties may be used
- be spaced above and below the DPC in accordance with Table 10.

Position

Table 10: Spacing of wall ties

	Maximum horizontal spacing (mm)	Maximum vertical spacing (mm)
General wall area	900	450
Jamb openings, movement joints, etc.	Within 225 of opening	Not more than 300(1)
Top of gable walls	225 (parallel to the top of the wall)	Not more than 300

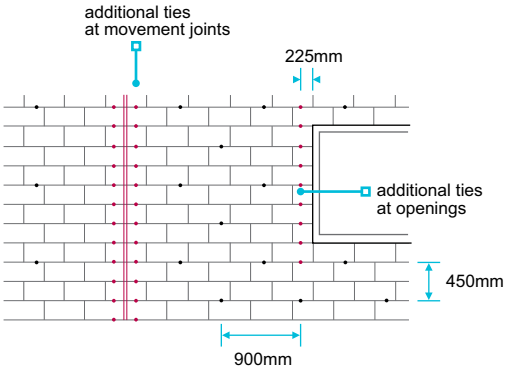
Notes

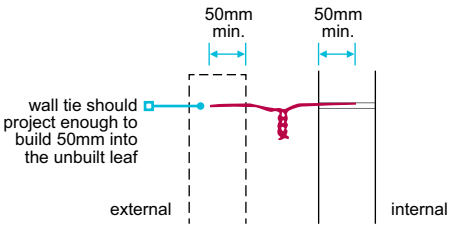
1 The cavity insulation may need cutting to insert the tie.

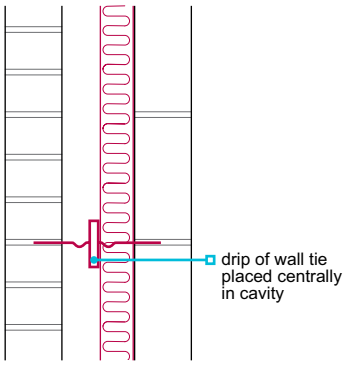
Water should be prevented from crossing the cavity. Care should be taken to avoid:

- ties sloping down to the inner leaf
- drips being off-centre
- ties having mortar droppings on them.

Cavity walls should be coursed so that the wall tie is level or slopes outwards.







Wall ties should be:

- built in and not pushed into joints
- bedded into the built leaf (by a minimum of 50mm) so that they can have a minimum 50mm bed into the unbuilt leaf
- positioned so that the drip faces downwards.

Ties for partial fill insulation

Where partial cavity fill insulation is being used, it should be held against the inner leaf by retaining devices, which may be clipped to the wall ties. Retaining devices should be:

- compatible with the wall ties
- used in accordance with Technical Requirement R3.

Where 1,200mm boards are used with partial fill cavities, the wall ties should:

- be spaced closer to provide adequate support and restraint
- be spaced at 600mm centres in rows, i.e. not staggered.

APPENDIX D – GENERAL PHOTOGRAPHS

PHOTOGRAPHIC SCHEDULE

RIDGE

Photo 1 – Southern Elevation.

Photo 2 – Horizontal crack at upper level to the front elevation.

Photo 3 – Overview of uPVC double glazed window units.

Photo 4 – Missing mortar throughout the exterior of the building.

Photo 5 – Concrete canopy over main front entrance on the southern elevation.

Photo 6 – Mastic/Sealant become loose to several windows.

Photo 7 – Example of airbricks blocked by a clay panel.

Photo 8 – Western Elevation.

Photo 9 – Airbricks partially blocked by paved concrete on the western elevation.

Photo 10 – Drainage channel blocked by debris on the western elevation.

Photo 11 – Northern Elevation.

Photo 12 –. Overview of 1 storey extension on the northern elevation.

Photo 13 – Closer view of tiles and brickwork on the northern elevation.

Photo 14 – Overview of the clay tiles and flashings.

Photo 15 – Further examples of mortar missing at low level.

Photo 16 – Eastern Elevation.

Photo 17 – SVP on the eastern elevation confirmed to contain asbestos.

Photo 18 – Closer view of condition of brickwork.

Photo 19 – Further examples of mortar missing at low level.

Photo 20 – Overview of timber soffit/fascia.

Photo 21 – Overview of Garage.

Photo 22 – Internal view of Garage.

Photo 23 – Overview of brickwork for the Garage.

Photo 24 – Curtilage of the property.

Photo 25 – As above.

Photo 26 – Overview of the roof.

Photo 27 – Closer view of the ridge tiles and condition.

Photo 28 – As above.

Photo 29 – Overview of clay tiles over 1 storey extension.

Photo 30 – Overview of tiles over the Garage.

Photo 31 – Overview of the roof.

Photo 32 – Lounge Room.

Photo 33 – As above.

Photo 34 – Closer view of window sill and boards.

Photo 35 – Blistering and elevated moisture levels to walls at low level of front porch area,

Photo 36 – As above.

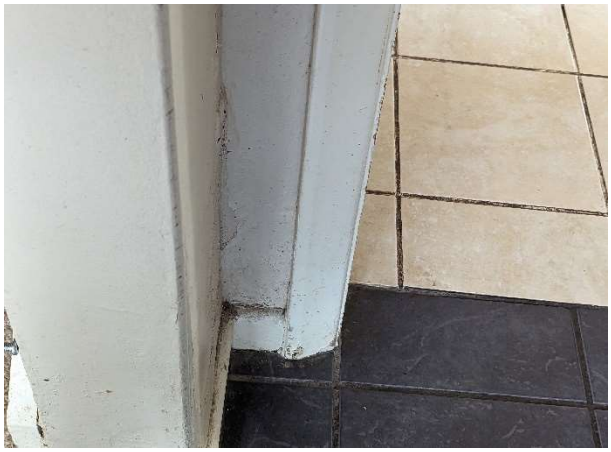


Photo 37 – As above.

Photo 38 – Bathroom.

Photo 39 – Blown glazing panel to bathroom window.

Photo 40 – Mildew build up to grouting around tiles and bathtub.

Photo 41 – Kitchen.

Photo 42 – Flaking paint to window reveal at high level.

Photo 43 – Trickle vent installed to Kitchen window.

Photo 44 – Pantry located in the Kitchen.

Photo 45 – Black mould to wall/ceiling to the Pantry located in the kitchen.

Photo 46 – Utilities room located in the 1st storey extension.

Photo 47 – Boiler located in the Pantry located in the rear porch area.

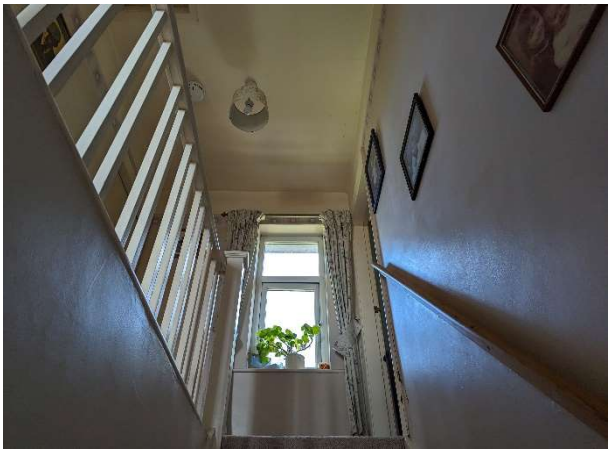


Photo 48 – Staircase leading to the 1st floor level.

Photo 49 – Close up of black mould affecting the window reveal of Bedroom 2.

Photo 50 – Overview of the window to Bedroom 2.

Photo 51 – Blown glazing panel to window unit located in Bedroom 2.

Photo 52 – Black mould to ceiling and walls, predominantly in the corners of Bedroom 2.

Photo 53 – Black mould to window reveal to Bedroom 2.

Photo 54 – Black mould to external wall at low level adjacent to bedroom 2.

Photo 55 – Bedroom 3.

Photo 56 – Black mould to window reveal.

Photo 57 – Black mould to walls and ceilings to Bedroom 3.

Photo 58 – As above.

Photo 59 – Bedroom 1.

Photo 60 – Black mould present to ceiling and walls.

RIDGE

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